REMARKS

Claims 1-48 are pending in the captioned Application in which claims 1-35 are rejected and claims 36-48 are newly added.

Claims 3, 6, 7, 8, 11, 15, 17, 18, 19, 21 and 33 are amended to replace the term "control terminal" with regard to a transistor with the equivalent term "control electrode" so as to be consistent with recitations of other transistors. Both the original and amended wording are equivalent and state the same purpose and function for the transistors, the change being one of form only.

Claims 1, 7, 8, 11, 18, 21 and 33 are amended to further clarify what is already claimed clearly therein, thereby to avoid any alleged indefiniteness. Both the original and amended wording are equivalent and state the same purpose and function for the transistors.

Dependent claims 3, 5, 6, 15, 16, 17, 19, 23, 24, 25 and 26 are amended for consistency with claims from which they depend thereby to avoid an informality.

This amendment does not narrow the scope of any claim element or limitation and so is not limiting of any claim element or limitation, and Applicant reserves the right to the benefit of the doctrine of equivalents with respect thereto.

Rejection Under 35 U.S.C. §112, ¶2:

Claims 7, 8, 11, 18, 21, 22-27, 29-31 and 33 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite due to certain phrases relating to the transistors as recited in claims 7, 8, 11, 18, 21, 22, 29 and 33.

While Applicant does not agree that the transistors as recited in these claims are vague and indefinite, Applicant has amended claims 1, 7, 8, 11, 18, 21, 33 and certain dependent claims to clarify what is already claimed clearly therein by the term "in circuit." Both the original wording "in circuit" and the amended wording "connected" are equivalent and state the same purpose and function for the transistors.

Regarding claims 7, 8, 11, 18, 21, 29 and 31, the Examiner's assertion that there are "recitations in each claim of 'a first transistor having a controllable conduction path in circuit with the battery and the first light source' and 'a second transistor having a controllable conduction path in circuit with the battery and the first light source' is not clear" is incorrect

in that it does not match the wording of any of those claims. Nevertheless, the original wording "in circuit" is amended to "connected" which is equivalent and states the same purpose and function.

Regarding claims 7, 8, 11, 18 and 21, the recitation of a "first transistor having a controllable conduction path in circuit with the battery and the first light source" is clear because the controllable conduction path must be between two "connection points" of the transistor and the control electrode is the third "connection point" of the transistor, thereby accounting for all three "connection points" of the transistor. Nevertheless, Applicant has amended to recite that each transistor has a "controllable conduction path connected with..." other elements, e.g., the battery and the first light source in some instances, which is equivalent to the original wording. Thus connections for all three electrodes or "connection points" of each transistor continues to be recited.

Claims 29 and 33 do not contain the wording objected to by the Examiner and so no amendment need be made thereto.

Regarding claims 22 and 33, the clause "a first (second) transistor having a controllable conduction path between first and second electrodes" is not indefinite. No antecedent basis is needed because the recited wording does not recite "the first and second electrodes," but first recites "first and second electrodes" in defining the transistors with an implied indefinite article as to each of the electrodes. It is immaterial whether the first and second electrodes are "part of the transistor or other parts within the circuitry" because the claim clearly and definitely recites that the controlled conduction path is between those electrodes. Moreover, the recitation of those electrodes later in the claim leaves no ambiguity or indefiniteness as to the connections recited for each transistor.

Regarding claim 33 as amended, there is no longer a "control terminal" recited in view of the amendment to recite a "control electrode" as discussed above.

Again regarding claim 33, there are no omitted structural relationships as alleged. The question of how the second transistor is coupled with the battery and the source of reference potential is clear in claim 33 as amended. As to the second transistor, the seventh paragraph of claim 33 is amended to recite the implicit function of the control electrode thereof, thereby eliminating any indefiniteness. As to the battery, no battery is recited, however, first and second terminals for receiving a battery potential are recited, as are

connections thereto. As to the source of reference potential, it is coupled between the first switch and the control electrode of the first transistor thereby to account for two connections thereof.

Accordingly, withdrawal of the rejection and allowance of claims 7, 8, 11, 18, 21, 22-27, 29-31 and 33 is solicited.

The Present Invention:

Before addressing the substantive rejections specifically, Applicant will set forth certain features of the claimed arrangement that clearly differentiate what is claimed in the present Application from what is described by the references.

Applicant's arrangement functions to protect the user of the light, not to protect the battery. The prior art circuits that cut off a battery powered circuit do so to protect the battery from excessive discharge, and so can leave the user "in the dark," both literally and figuratively. On the other hand, Applicant's arrangement specifically provides for battery capacity to power a second light source or load for a substantial time after a first light source or load has been extinguished.

Applicant's arrangement specifically includes two different light sources (loads) – one that draws a higher power (e.g., a higher current) and another that draws a lower power (e.g., a lower current). Typically, the higher power light source (load) may be an incandescent or other lamp and the lower power light source (load) may be a light-emitting diode (LED), although the higher power light source (load) could be a high power (high intensity) LED.

Applicant's arrangement removes power from (de-energizes) only the higher power light source (load) when the battery becomes discharged to a predetermined potential, and before the battery is fully discharged, thereby reserving capacity in the battery to power the lower power light source (load) for a substantial additional time. This feature is recited in the claims presented herein and is fully supported in the specification.

Paragraphs [031] and [036], for example, state that battery capacity remains available to power the LED for a substantial time, and Paragraph [069]-[071] states that this provides an unexpectedly long operating time, i.e. an operating time that is greatly extended over the operating time of the high power light source (load).

By way of a particular example, Paragraphs [043] - [044] describe an example

embodiment of a battery operated light wherein an incandescent lamp operates for about 70 minutes and is then de-energized over a time of about 12-16 minutes, following which three LEDs may be operated to provide light for an additional 80-100 minutes. The battery is partially discharged, but is not fully discharged, when the incandescent lamp is de-energized, e.g., as described in Paragraph [070].

Applicant notes that this arrangement may also "soften" the turning off of the high power light source so as to mimic the loss of light (i.e. the dimming of the light) that would occur if the battery were allowed to fully discharge (but the battery is not). See Paragraphs [030] and [034]. Thus, the user experiences a dimming of the light that seems to indicate that the battery is running out when in fact there is substantial capacity remaining after the high power light is de-energized. See Paragraphs [071], [072] and [076]. In the foregoing particular example, such mimicking of battery discharged takes place over about 12-16 minutes.

Rejection Under 35 U.S.C. §102(e):

Claims 28 and 32 are rejected under 35 U.S.C. §102(e) as being anticipated by US 3,659,119 to Kasama et al. The rejection is respectfully traversed.

Kasama et al relates to a thyristor chopper control wherein a capacitor 10 is discharged at a predetermined instance in the opposite polarity of each cycle of an alternating current (AC) voltage to extinguish conduction in a main thyristor, with oppositely connected thyristors 6 and 9 being provided for conduction during opposite polarities of the AC voltage for operating a load motor 14. (Column 2, lines 8-45).

The stated basis for the rejection is inconsistent with what Kasama et al describes, and so fails to set forth an anticipation. For example, Kasama et al states at column 2, lines 16-20, that the load motor 14 is the "load" and so resistor 24 is not the "load" as the Examiner alleges. Resistor 24 is stated at column 2, lines 21-31, to be a variable resistor that with other components develops a controlling signal at output terminal "a" that is related to the energy stored in the inverting capacitor 10.

In addition, Kasama et al states at column 2, lines 28-31, that resistor 26 is a "bypass resistor" connected between the voltage line 3 and the interconnection of resistors 21 and 22 and not a source of reference potential as the Examiner alleges. Because the variable voltage

of capacitor 10 is applied to the circuit including resistor 26, it is seen to provide a variable voltage and not a reference voltage to transistor 19.

Kasama et al is directed to extinguishing thyristors on each cycle of a AC signal, and not to extinguishing a high power lamp when a battery becomes discharged to a predetermined voltage short of full discharge.

Nothing in Kasama et al is seen to describe or suggest a power control of the sort recited in Applicant's claims 28 and 32.

In particular, the power control of Applicant's claim 28 is patentable at least because it recites:

> "a first switch having first and second ends, the first end thereof being coupled to said first terminal;
> "a first transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to said second terminal; and
> "a source of reference potential coupled between the second end of said first switch and the control electrode of said first transistor;
> "wherein the second electrode of said first transistor is coupled to said first terminal via a first load, and
> "wherein the controllable conduction path of said first transistor becomes non-conductive for de-energizing only the first load as a received battery potential decreases to a predetermined potential at which a battery providing the predetermined potential is not fully discharged; and
> "means for energizing a second load at least when the first load is de-energized by said first transistor becoming non-conductive,"

which is not described by Kasama et al.

Claim 32 is patentable at least because it depends from patentable claim 28.

Accordingly, the rejection under 35 U.S.C. §102(e) is overcome and should be withdrawn.

Rejections Under 35 U.S.C. §103(a):

Claims 1-8, 10, 11, 22-21 (sic), 29, 30 and 33-35 are rejected under 35 U.S.C. §103(a) as being unpatentable over US 3,953,768 to Meredith et al. The rejection is overcome by claims 1,7, 8, 11, 21, 22, 29 and 33-35 as amended.

Meredith et al relates to a portable fluorescent lamp and inverter 15 having two

fluorescent tubes 32, 36 of the same type. The light has an automatic shut off circuit 42 using a zener diode 43 to shut off the inverter 15 when the batteries are discharged to a safe limit so that the battery cells are not damaged. (Abstract; Column 1, lines 39-46; Column 2, lines 25-31; Column 5, lines 2-8 and 52-65).

Rechargeable cells (battery cells) 21 pose problems to protect the cells from excessive discharging that can permanently impair the cells. (Column 1, lines 39-46). The discharge limiter operates when the battery voltage drops to a selected point beyond which damage to the cells 21 might occur to cut off the light. (Column 2, lines 25-31). While one may be able to switch off one tube 32, 36 and run on one lamp tube after a waiting period (in the dark) after the cut off circuit 42 cuts off the light, such one-tube operation depends upon an uncertain "recovery" of the already discharged battery cells after a time of non-operation, and can only be until the cut off circuit again operates which the user must "understand that the useable battery charge is quite near exhaustion." (Column 13, lines 35-47).

Meredith et al protects the battery – Applicant's arrangement protects the user. Specifically, Applicant's claimed arrangement protects the user against being left in the dark with a fully discharged battery.

The light of Applicants' claim 1 is patentable at least because it recites:

> "a source of a reference potential;
> "a comparator responsive to a potential produced by the battery and to the reference potential for de-energizing only said first light source when the battery is discharged to a predetermined potential, but is not fully discharged;
> "a second light source that operates at a lower current than does said first light source to produce light; and
> "a second switch connected with the battery for selectively energizing said second light source to produce light,"

which is not described or suggested by Meredith et al.

The light of Applicants' claim 7 is patentable at least because it recites:

> "a source of a reference potential;
> "a comparator responsive to a potential produced by the battery and to the reference potential for de-energizing only said first light source when the battery is discharged to a predetermined potential, but is not fully discharged,
> "wherein said comparator comprises a first transistor having a controllable conduction path connected with the battery and said first light source for energizing and de-energizing said first light source and having a control electrode to which said

source of reference potential is coupled;

"a second light source that operates at a lower current than does said first light source to produce light;

"a second switch connected with the battery for selectively energizing said second light source to produce light; and

"a second transistor having a controllable conduction path connected with the battery and said source of reference potential and having a control electrode coupled to the controllable conduction path of said first transistor for being controlled by said first transistor,"

which is not described or suggested by Meredith et al.

The light of Applicants' claim 8 is patentable at least because it recites:

"a source of a reference potential;

"a comparator responsive to a potential produced by the battery and to the reference potential for de-energizing only said first light source when the battery is discharged to a predetermined potential, but is not fully discharged,

"wherein said comparator comprises a first transistor having a controllable conduction path connected with the battery and said first light source for energizing and de-energizing said first light source and having a control electrode to which said source of reference potential is coupled;

"a second light source that operates at a lower current than does said first light source to produce light; and

"a second switch connected with the battery for selectively energizing said second light source to produce light,

"wherein said second switch comprises a second transistor having a controllable conduction path connected with the battery and said second light source and having a control electrode coupled to the controllable conduction path of said first transistor for being controlled by said first transistor,"

which is not described or suggested by Meredith et al.

Further, the light of Applicants' claim 11 is patentable at least because it recites:

"a source of a reference potential;

"a comparator responsive to a potential produced by the battery and to the reference potential for de-energizing only said first light source when the battery is discharged to a predetermined potential, but is not fully discharged;

"a second light source that operates at a lower current than does said first light source to produce light;

"a second switch connected with the battery for selectively energizing said second light source to produce light; and

"a transistor having a controllable conduction path connected with the battery and said second light source and having a control electrode coupled to said comparator, wherein said transistor energizes said second light source responsive to said comparator de-energizing said first light source when the battery potential is below the predetermined potential,"

which is not described or suggested by Meredith et al.

The light of Applicants' claim 21 is patentable at least because it recites:

"a source of a reference potential;

"a comparing circuit responsive to a potential produced by the battery and to the reference potential for de-energizing only said incandescent light source when the battery is discharged to a predetermined potential, but is not fully discharged;

"a solid state light source;

"a second switch connected with the battery for selectively energizing said solid state light source to produce light independently of said first switch, or to produce light when the battery potential is below the predetermined potential, or to produce light independently of said first switch when the battery potential is below the predetermined potential; and

"means for energizing said solid state light source responsive to said comparing circuit de-energizing said incandescent light source when the battery potential is below the predetermined potential,

"wherein said means for energizing comprises a second transistor having a controllable conduction path connected with the battery and said second light source and having a control electrode coupled for being controlled by said comparing circuit,"

which is not described or suggested by Meredith et al.

The power control of Applicants' claim 22 is patentable at least because it recites:

"a first transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to said first terminal;

"a second transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to said second terminal; and

"a source of reference potential coupled between the second electrode of said first transistor and the control electrode of said second transistor;

"wherein the second electrode of said second transistor is coupled to the control electrode of said first transistor and to said first terminal via a first load; and

"wherein the controllable conduction path of said second transistor becomes non-conductive for de-energizing only the first load as a received battery potential decreases to a predetermined potential at which a battery providing the predetermined potential is not fully discharged; and

"means for energizing a second load at least when the first load is de-energized by said second transistor becoming non-conductive,"

which is not described or suggested by Meredith et al.

The power control of Applicants' claim 29 is patentable at least because it recites:

"a first switch having first and second ends, the first end thereof being coupled

to said first terminal;

"a first transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to said second terminal;

"a source of reference potential coupled between the second end of said first switch and the control electrode of said first transistor;

"wherein the second electrode of said first transistor is coupled to said first terminal via a first load; and

"a second transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to a second load and the control electrode thereof being coupled to the second electrode of said first transistor,

"wherein the controllable conduction path of said first transistor becomes non-conductive for de-energizing only the first load as a received battery potential decreases to a predetermined potential at which a battery providing the predetermined potential is not fully discharged,"

which is not described or suggested by Meredith et al.

Further, the power control of Applicants' claim 33 is patentable at least because it recites:

"a first switch having first and second ends, the first end thereof being coupled to said first terminal;

"a first transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to said second terminal;

"a source of reference potential coupled between the second end of said first switch and the control electrode of said first transistor;

"wherein the second electrode of said first transistor is coupled to said first terminal via a load; and

"a second transistor having a controllable conduction path coupled between the battery and said source of reference potential and having a control electrode for controlling the conduction of the controllable conduction path thereof, the control electrode thereof being coupled to the controllable conduction path of said first transistor for being controlled by said first transistor,

"wherein the controllable conduction path of said first transistor becomes non-conductive responsive to the reference potential and a received battery potential for de-energizing only the load as a received battery potential decreases to a predetermined potential at which a battery providing the predetermined potential is not fully discharged,"

which is not described or suggested by Meredith et al.

The flashlight of Applicants' claim 34 is patentable at least because it recites:

"a source of a reference potential;

"a comparator responsive to a potential produced by the battery and to the reference potential for de-energizing only said first light source when the battery is discharged to a predetermined potential, but is not fully discharged; and

"a second light source that operates to produce light at a lower current than does said first light source, wherein said second light source is selectively operable from the battery to produce light at least after said comparator de-energizes said first light source,"

which is not described or suggested by Meredith et al.

Finally, the power control of Applicants' claim 35 is patentable at least because it recites:

"a first switch having first and second ends, the first end thereof being coupled to said first terminal;

"a transistor having a controllable conduction path between first and second electrodes and having a control electrode for controlling the conduction of the controllable conduction path thereof, the first electrode thereof being coupled to said second terminal;

"a source of reference potential coupled between the second end of said first switch and the control electrode of said transistor;

"a first light source for producing light when electrically energized;

"wherein the second electrode of said transistor is coupled to said first terminal via said first light source,

"wherein the controllable conduction path of said transistor becomes non-conductive responsive to the reference potential for de-energizing only said first light source as a received battery potential decreases to a predetermined potential at which a battery providing the predetermined potential is not fully discharged;

"a second light source for producing light when energized at a lower current than that required by said first light source to produce light; and

"a second switch operable independently of said first switch,

"wherein said second switch and said second light source are coupled between said first and second terminals for selectively energizing said second light source,"

which is not described or suggested by Meredith et al.

Applicants' claims 2-6, 10 and 30 are patentable at least because they depend from one of patentable claims 1 and 29, as well as for the reasons set forth previously. In addition, claim 2 recites a second switch operable responsive to the comparator, claim 3 recites a transistor controlling a second light source responsive to the comparator de-energizing the first light source, and claim 10 recites means energizing the second light source responsive to the comparator de-energizing the first light source, none of which are described or suggested by Meredith et al.

Claims 9, 12-21 and 31 are rejected under 35 U.S.C. §103(a) as being unpatentable over US 3,953,768 to Meredith et al in view of US 5,374,876 to Horibata et al. The rejection is overcome by claims 12, 18, 21 and 29 as amended.

Meredith et al is discussed above.

Horibata et al relates to a portable multi-color signal light with selectively switchable LED and incandescent illumination wherein independent switches control the various incandescent and LED lights.

Even assuming *arguendo* that Horibata et al and Meredith et al could properly be combined under the law, nothing in Horibata et al describes or suggests the features of Applicant's claims that are lacking in Meredith et al, and so Applicant's claims are patentable over Meredith et al and Horibata et al, whether taken individually or in proper combination.

The light of Applicants' claim 12 is patentable at least because it recites:

"a source of a reference potential;

"a comparing circuit responsive to a potential produced by the battery and to the reference potential for de-energizing only said incandescent light source when the battery is discharged to a predetermined potential, but is not fully discharged;

"a solid state light source; and

"a second switch connected with the battery for selectively energizing said solid state light source to produce light independently of said first switch and/or when the battery potential is below the predetermined potential,"

which is not described or suggested by Meredith et al and/or Horibata et al, whether taken individually or properly combined.

The light of Applicants' claim 18 is patentable at least because it recites:

"a source of a reference potential;

"a comparing circuit responsive to a potential produced by the battery and to the reference potential for de-energizing only said incandescent light source when the battery is discharged to a predetermined potential, but is not fully discharged;

"said comparing circuit comprising a first transistor having a controllable conduction path connected with the battery and said incandescent light source for energizing and de-energizing said incandescent light source and having a control

electrode to which said source of reference potential is coupled;

"a solid state light source;

"a second switch connected with the battery for selectively energizing said solid state light source to produce light independently of said first switch, or to produce light when the battery potential is below the predetermined potential, or to produce light independently of said first switch when the battery potential is below the predetermined potential; and

"a second transistor having a controllable conduction path connected with the battery and said source of reference potential and having a control electrode coupled to the controllable conduction path of said first transistor for being controlled by said first transistor,"

which is not described or suggested by Meredith et al and/or Horibata et al, whether taken individually or properly combined.

Finally, the light of Applicants' claim 21 is patentable at least because it recites:

"a source of a reference potential;

"a comparing circuit responsive to a potential produced by the battery and to the reference potential for de-energizing only said incandescent light source when the battery is discharged to a predetermined potential, but is not fully discharged;

"a solid state light source;

"a second switch connected with the battery for selectively energizing said solid state light source to produce light independently of said first switch, or to produce light when the battery potential is below the predetermined potential, or to produce light independently of said first switch when the battery potential is below the predetermined potential; and

"means for energizing said solid state light source responsive to said comparing circuit de-energizing said incandescent light source when the battery potential is below the predetermined potential,

"wherein said means for energizing comprises a second transistor having a controllable conduction path connected with the battery and said second light source and having a control electrode coupled for being controlled by said comparing circuit,"

which is not described or suggested by Meredith et al and/or Horibata et al, whether taken individually or properly combined.

Applicants' claims 9, 13-17, 19-20 and 31 are patentable at least because they depend from one of patentable claims 1, 12, and 29, as well as for the reasons set forth previously. In addition, claims 14 and 15 recite a second switch responsive to the comparing circuit for controlling a solid state light source, claim 19 recites the second switch comprising a second transistor, and claim 20 recites means energizing the solid state light source responsive to the comparing circuit, none of which are described or suggested by Meredith et al and/or Horibata et al, whether taken individually or properly combined.

Accordingly, the rejections under 35 U.S.C. §103(a) are overcome and should be withdrawn, and claims 1-8, 10, 11, 22-21 (sic), 29, 30 and 33-35 should be allowed.

Newly Added Claims 36-48:

Support for newly added claims 36-48 may be found, for example, in the specification at Paragraphs [030], [034], [071], [072] and [076].

Claims 36-48 are patentable because they each depend from one of patentable claims 1, 7, 8, 11, 12, 18, 21, 22, 28, 29, 33, 34 and 35, and further because each added claim recites de-energizing a light source or a load over a time to mimic discharge of a battery, which is not described or suggested by any reference of record.

Allowance of claims 36-48 is proper and such action is solicited.

Supplemental Information Disclosure Statement:

Pursuant to 37 C.F.R. §1.97(c), Applicant submits herewith a Supplemental Information Disclosure Statement including a Form PTO-1449 or SB/08 and copies of any non-U.S. Patent citations. Provision for payment of the fee therefor is made below. Claims 1-48 are patentable at least for the reasons set forth herein.

Applicant requests that the Examiner consider the additional citations made in that Supplemental Information Disclosure Statement and make same of record in the captioned Application, and provide an initialed Form PTO-1449 with the next communication.

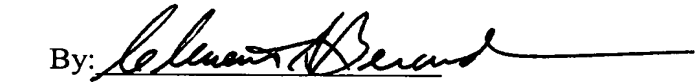
Conclusion:

Applicant respectfully requests that the rejections be withdrawn, and that the Application including claims 1-48 be allowed and passed to issuance.

Enclosed is a check in the amount of $570.00 in payment of the $325.00 fee for increasing the total number of claims by 13, the $65 fee for filing a Response in the first month time extension, and of the $180.00 fee for submitting an Information Disclosure Statement herewith. A Fee Transmittal is submitted herewith. Should the fee calculation be incorrect or should any other fee be due in consequence of this response, please charge such fee and deposit any refund to Deposit Account 04-1406 of Dann, Dorfman, Herrell & Skillman.

The Examiner is requested to telephone the undersigned attorney if there is any question or if prosecution of this Application could be furthered by telephone.

Respectfully submitted,
Dann, Dorfman, Herrell & Skillman, P.C.
Attorneys for Applicant(s)

By: 
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